



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,375	02/17/2004	Michael Eugene Broach	50019.261US11/P05695P01	1831
23552	7590	05/25/2006	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			HOLLINGTON, JERMELE M	
			ART UNIT	PAPER NUMBER
			2829	

DATE MAILED: 05/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/780,375

Applicant(s)

BROACH ET AL.

Examiner

Jermele M. Hollington

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-32 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. Applicant's arguments, see "Remarks" on page 9, filed April 21, 2006, with respect to claims 16-32 have been fully considered and are persuasive. The finality of the last Office Action has been withdrawn.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 16-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Corva et al (6828766).

Regarding claims 16 and 19, Corva et al disclose [see Figs. 2 and 7] an apparatus and method for adjusting slope compensation in a switching regulator (not number but see Figs.) that includes an inductor (inductor located above I_L), the apparatus comprising a means for measuring (CURRENT SENSING unit) a parameter [referring to current] that is associated with the inductor (inductor located above I_L); a means (CURRENT SENSING unit) for providing a measurement signal ($R_{seq}I_L$) that is associated with the measured parameter (current), a means

Art Unit: 2829

(OSCILLATOR) for adjusting a slope [via SLOPE GEN] that is associated with a ramp signal [see col. 2, lines 4-10] in response to the measurement signal(R_{seqI_L}); and a means (CURRENT COMPARATOR) for compensating a response that is associated with a control loop (describe as current loop in the prior art) in the switching regulator with the ramp signal [via SLOPE GEN] such that the control loop is responsive to changes in inductor (inductor located above I_L) current slope via the measurement signal(R_{seqI_L}).

Regarding claim 17, Corva et al disclose adjusting the slope associated with the ramp signal [via SLOPE GEN] comprises at least one of changing a capacitance value that is associated with a ramp generator (SLOPE GEN), and changing a charging current that is associated with the ramp generator circuit (SLOPE GEN), wherein the slope of the ramp signal [via SLOPE GEN] is proportional to the ratio of the charging current to the capacitance value such that the slope of the ramp signal is responsive to the measurement signal(R_{seqI_L}).

Regarding claims 18 and 20, Corva et al disclose further comprising: a means for monitoring (CONTROL LOGIC) a reference signal that is related to an output voltage of the switching regulator, a means (CURRENT COMPARATOR) for dividing the reference signal with the measurement signal (R_{seqI_L}) to provide a ratio, and a means (OSCILLATOR) for changing the slope that is associated with the ramp signal in response to the ratio such that the slope of the ramp signal is responsive to the measurement signal (R_{seqI_L}) and the output voltage.

Regarding claims 21 and 27, Corva et al disclose measuring the parameter (current) associated with the inductor (inductor above I_L) comprises: measuring (control logic) a current slope associated with current flowing in the inductor (inductor above I_L), and wherein the parameter (current) corresponds to the current slope.

Regarding claims 22 and 28, Corva et al disclose wherein adjusting the slope associated with the ramp signal [via SLOPE GEN] corresponds to adjusting the slope associated with the ramp signal in response to the measured current slope according to at least one of: a matched slope, a fraction of a downward slope associated with the inductor current (I_L), and a multiple of the downward slope associated with the inductor current (I_L).

Regarding claims 23-24 and 29-30, Corva et al disclose monitoring [via CONTROL LOGIC] an output voltage associated with the switching regulator, and dynamically adjusting the slope that is associated with the ramp signal (via OSCILLATOR) in response to the monitored output voltage, wherein measuring the parameter (current) associated with the inductor (inductor above I_L) comprises measuring (CURRENT COMPARATOR) a current slope associated with current flowing in the inductor such that the parameter (current) corresponds to the current slope.

Regarding claims 25 and 31, Corva et al disclose means (CONTORL LOGIC) for monitoring an output voltage associated with the switching regulator to provide a first current signal, generating a second current signal as the measurement signal, summing [via comparator] the first current signal and the second current signal, and adjusting the slope associated with the ramp signal [via SLOPE GEN] in response to the sum of the first current signal and the second current signal.

Regarding claims 26 and 32, Corva et al disclose wherein adjusting the slope associated with the ramp signal [via SLOPE GEN] corresponds to an integration of the sum of the first current signal and the second current signal with a capacitor circuit.

Art Unit: 2829

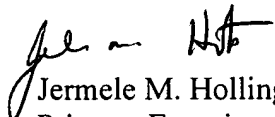
Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dobkin et al (5929620), Edwards (6498466, 6611131), Oswald et al (20060006854, 20060043951) disclose an apparatus and method for a slope compensation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jermele M. Hollington whose telephone number is (571) 272-1960. The examiner can normally be reached on M-F (9:00-4:30 EST) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on (571) 272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jermele M. Hollington
Primary Examiner
Art Unit 2829

JMH
May 22, 2006